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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,062	01/30/2004	Toshiaki Aono	Q79570	5486
23373	7590	06/13/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			MARTIN, LAURA E	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/767,062	Applicant(s) AONO ET AL.	
	Examiner Laura E. Martin	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-15, 22, and 23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 10-24 of copending Application No. 10/765929 in view of Hanaki et al (US 2005/0073563).

10/797062	10/765929
Claims 1 and 22: An ink-jet recording ink and an image forming method, comprising a pigment and a compound represented by the following General formula (I): $R-X-(Y)_n-H$ General formula (I) wherein in General formula (I), R represents a hydrophobic group, or a group derived from a hydrophobic polymer; X represents a bivalent linking	Claims 1 and 24: An ink-jet recording ink and an image-forming method, comprising a oil-soluble dye and an oil soluble polymer and a compound represented by the following General formula (I): $R-X-(Y)_n-H$ General formula (I) wherein in General formula (I), R represents a hydrophobic group, or a group derived from a hydrophobic polymer; X

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<p>represented by B:</p> $\text{A: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{OH}}{\text{C}}})\text{---}$ $\text{B: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{O---C---R}^2}{\text{C}}})\text{---}$ $\text{C: } \text{---}(\overset{\text{R}^3}{\underset{\text{Z}^1}{\text{C}}}\text{---}\overset{\text{R}^4}{\underset{\text{Z}^2}{\text{C}}})\text{---}$ $\text{D: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{OH}}{\text{C}}}\text{---CH}_2\text{---O---})\text{---}$ <p>wherein in structural units A through D, R¹ represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms; R² represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms; R³ represents a hydrogen atom or a methyl group; R⁴ represents a hydrogen atom, --CH₃, --CH₂COOH or an ammonium salt thereof or alkali metal salt thereof, or --CN; Z¹ represents a hydrogen atom, --COOH or an ammonium salt thereof or alkali metal salt thereof, or --CONH₂; and Z² represents --COOH or an ammonium salt thereof or alkali metal salt thereof, --SO₃H or an ammonium salt thereof or alkali metal salt thereof, --OSO₃H or an ammonium salt thereof or alkali metal salt thereof, --CH₂SO₃H or an ammonium salt thereof or alkali metal salt thereof, --CONHC(CH₃)₂CH₂SO₃H or an ammonium salt thereof or alkali metal salt thereof, or --CONHCH₂CH₂CH₂N⁺(CH₃)₃Cl⁻.</p>	<p>by mole of structural units represented by B:</p> $\text{A: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{OH}}{\text{C}}})\text{---}$ $\text{B: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{O---C---R}^2}{\text{C}}})\text{---}$ $\text{C: } \text{---}(\overset{\text{R}^3}{\underset{\text{Z}^1}{\text{C}}}\text{---}\overset{\text{R}^4}{\underset{\text{Z}^2}{\text{C}}})\text{---}$ $\text{D: } \text{---}(\text{CH}_2\text{---}\overset{\text{R}^1}{\underset{\text{OH}}{\text{C}}}\text{---CH}_2\text{---O---})\text{---}$ <p>wherein in structural units A through D, R¹ represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms; R² represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms; R³ represents a hydrogen atom or a methyl group; R⁴ represents a hydrogen atom, --CH₃, --CH₂COOH or an ammonium salt thereof or alkali metal salt thereof, or --CN; Z¹ represents a hydrogen atom, --COOH or an ammonium salt thereof or alkali metal salt thereof, or --CONH₂; and Z² represents --COOH or an ammonium salt thereof or alkali metal salt thereof, --SO₃H or an ammonium salt thereof or alkali metal salt thereof, --OSO₃H or an ammonium salt thereof or alkali metal salt thereof, --CH₂SO₃H or an ammonium salt thereof or alkali metal salt thereof, --CONHC(CH₃)₂CH₂SO₃H or an ammonium salt thereof or alkali metal salt thereof, or --CONHCH₂CH₂CH₂N⁺(CH₃)₃Cl⁻.</p>
Claim 2: the hydrophobic group represented by R in General formula (I) is an aliphatic group or an aromatic group.	Claim 10: the hydrophobic group represented by R in General formula (I) is an aliphatic group or an aromatic group.
Claim 3: the hydrophobic group represented by R in General formula (I) is an aliphatic group or an aromatic group.	Claim 11: the hydrophobic group represented by R in General formula (I) is an aliphatic group or an aromatic group.
Claim 4: the hydrophobic group represented by R in General formula (I) is selected from the group consisting of alkyl, alkenyl, alkynyl, phenyl and naphthyl groups.	Claim 12: the hydrophobic group represented by R in General formula (I) is selected from the group consisting of alkyl, alkenyl, alkynyl, phenyl and naphthyl groups.
Claim 5: the hydrophobic group represented by R in General formula (I) is an alkyl group having 3 to 70 carbon atoms.	Claim 13: the hydrophobic group represented by R in General formula (I) is an alkyl group having 3 to 70 carbon atoms.
Claim 6: R in General formula (I) is a group derived from at least one hydrophobic polymer selected from the group consisting of polystyrene, polymethacrylic acid ester, polyacrylic acid ester, polyvinyl chloride, and derivatives thereof.	Claim 14: R in General formula (I) is a group derived from at least one hydrophobic polymer selected from the group consisting of polystyrene, polymethacrylate, polyacrylate, polyvinyl chloride, and derivatives thereof.
Claim 7: a polymerization degree of R in the General formula (I) is from 2 to 500.	Claim 15: a polymerization degree of R in the General formula (I) is from 2 to 500.
Claim 8: the hetero bond in X in the General formula (I) is selected from the group consisting of an ether bond, an ester bond, a thioether bond, a thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and	Claim 16: the hetero bond in X in the General formula (I) is selected from the group consisting of an ether bond, an ester bond, a thioether bond, a thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and a thiourea

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a thiourea bond.	bond.
Claim 9: the structural unit A is a structural unit derived from vinyl alcohol, α -methylvinyl alcohol, or α -propylvinyl alcohol.	Claim 17: the structural unit A is a structural unit derived from vinyl alcohol, α -methylvinyl alcohol, or α -propylvinyl alcohol.
Claims 10 and 23: the structural unit B is a structural unit derived from vinyl acetate, vinyl formate, vinyl propionate, or an α -substitution product thereof.	Claim 18: the structural unit B is a structural unit derived from vinyl acetate, vinyl formate, vinyl propionate, or an α -substitution product thereof.
Claim 11: the structural unit C is a structural unit derived from acrylic acid, methacrylic acid, itaconic acid, maleic acid, an ammonium salt thereof or a metal salt thereof.	Claim 19: the structural unit C is a structural unit derived from acrylic acid, methacrylic acid, itaconic acid, maleic acid, an ammonium salt thereof or a metal salt thereof.
Claim 12: the structural unit D is selected from the group consisting of $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$, $-\text{CH}_2\text{C}(\text{CH}_3)(\text{OH})\text{CH}_2\text{O}-$, and $-\text{CH}_2\text{C}(\text{C}_2\text{H}_5)(\text{OH})\text{CH}_2\text{O}-$.	Claim 20: the structural unit D is selected from the group consisting of $-\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{O}-$, $-\text{CH}_2\text{C}(\text{CH}_3)(\text{OH})\text{CH}_2\text{O}-$, and $-\text{CH}_2\text{C}(\text{C}_2\text{H}_5)(\text{OH})\text{CH}_2\text{O}-$.
Claim 13: a mass ratio of R to $(\text{Y})_n$ in General formula (I) is from 0.01 to 2, the mass ratio being calculated using atomic weights of respective atoms in R and $(\text{Y})_n$.	Claim 21: a mass ratio of R to $(\text{Y})_n$ in General formula (I) is from 0.01 to 2, the mass ratio being calculated using atomic weights of respective atoms in R and $(\text{Y})_n$.
Claim 14: $(\text{Y})_n$ in General formula (I) comprises, as a structural unit thereof, ethylene, propylene, isobutene, acrylonitrile, acrylamide, methacrylamide, N-vinylpyrrolidone, vinyl chloride or vinyl fluoride.	Claim 22: $(\text{Y})_n$ in General formula (I) comprises, as a structural unit thereof, ethylene, propylene, isobutene, acrylonitrile, acrylamide, methacrylamide, N-vinylpyrrolidone, vinyl chloride or vinyl fluoride.
Claim 15: ink comprising water.	Claim 23: ink comprising water.

Claims 1 and 22 of 10/767062 teaches a pigment, while claims 1 and 24 of 10/765929 teach a oil-soluble dye and an oil-soluble polymer. Hanaki et al. (US 2005/0073563) teaches a pigment ink and an ink with an oil-soluble dye and oil-soluble polymer [0019] and [0256]. It would have been obvious to one of ordinary skill in the art at the time of the invention, that both pigment and oil-soluble dye can be used in the ink in order to create higher quality inks that handle better in different situations.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 9, 11, and 12 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: in claim 1, applicant claims "structural units of repeated Y comprise at least one structural unit represented by A, C, or D", and in claims 9, 11, and 12, applicant claims A, C, and D independently. Due to the word "or", not all three structural units are necessary in the invention, thus claims 9, 11, and 12 are not all necessarily part of the invention.

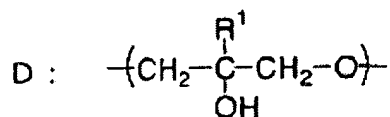
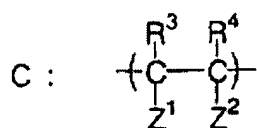
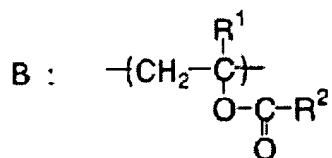
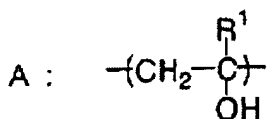
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11, 13-15, 17, 18, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubodera (JP 10095942) in view of Aoshima (US 6068963).

Kubodera teaches an inkjet recording ink and image forming method [0001], comprising a compound represented by the following general formula (I): $R-X-(Y)_n-H$, wherein the general formula (I), R represents a hydrophobic group [0005], or a group derived from a hydrophobic polymer; n is an integer from 10 to 3500 [0005]; and structural units of repeated Y comprise at least one structural unit represented by A, C, or D [0005], and further comprise 0-40% by mole of structural units represented by B [0045]:



wherein in structural units A through D, R¹ represents a hydrogen atom or an alkyl group having 1 to 6 carbon atoms; R² represents a hydrogen atom or an alkyl group having 1 to 10 carbon atoms; R³ represents a hydrogen atom or a methyl group; R⁴ represents a hydrogen atom, -CH₃, -CH₂COOH, or an ammonium salt thereof or an alkali metal salt thereof or -CN; Z¹ (X) represents a hydrogen atom, -COOH, or an ammonium salt thereof or alkali metal salt thereof, or -CONH₂; and Z² (Y) represents -COOH or an ammonium salt thereof or alkali metal salt thereof, SO₃H or an ammonium salt thereof or alkali metal salt thereof, -OSO₃H or an ammonium salt thereof or alkali metal salt thereof, -CH₂SO₃H or an ammonium salt thereof or alkali metal thereof, -CONHC(CH₃)₂CH₂SO₃H or an ammonium salt thereof or alkali metal salt thereof, or -CONHCH₂CH₂CH₂N⁺(CH₃)₃Cl⁻ [0007]. Kubodera also teaches the hydrophobic group represented by R in general formula (I) is an aliphatic group or an aromatic group, alicyclic group, is selected from the group consisting of alkyl, alkenyl, alkynyl, phenyl, and naphthyl groups [0030]. Kubodera also teaches the hydrophobic group represented by R in general formula (I) is an alkyl group having 3 to 70 carbon atoms [0031] wherein polymerization degree of R in the general formula (I) is from 2 to 500

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[0032]; R is a group derived from at least one hydrophobic polymer selected from the group consisting of polystyrene, polymethacrylic acid ester, polyacrylic acid ester, polyvinyl chloride, and derivatives thereof [0032]. Kubodera also teaches the structural unit A is a structural unit derived from vinyl alcohol, α -methylvinyl alcohol or α -propylvinyl alcohol [0043]; the structural unit B is a structural unit derived from vinyl acetate, vinyl formate, vinyl propionate, or an α -substitution product thereof [0043]; the structural unit C is a structural unit derived from acrylic acid, methacrylic acid, itaconic acid, maleic acid, an ammonium salt thereof or a metal salt thereof [0043]. Kubodera also teaches a mass ratio of R to $(Y)_n$ in general formula (I) is from 0.01 to 2, the mass ratio being calculated using atomic weights of respective atoms in R to $(Y)_n$ [0048]; $(Y)_n$ comprises, as structural units thereof, ethylene, propylene, isobutene, acrylonitrile, acrylamide, methacrylamide, N-vinylpyrrolidone, vinyl chloride, or vinyl fluoride [0046]. Kubodera also teaches the ink further comprising water [0073], a dispersing agent [0065], a drying inhibitor (moisturizer) [0056].

Kubodera does not teach a pigment or X representing a bivalent linking group having a hetero bond or the hetero bond in general formula (I) selected from the group consisting of an ether bond, an ester bond, a thioether bond, a thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and a thiourea bond.

Aoshima teaches a pigment (column 15, lines 46-55) and X representing a bivalent linking group having a hetero bond or the hetero bond in general formula (I) selected from the group consisting of an ether bond, an ester bond, a thioether bond, a

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thioester bond, a sulfonyl bond, an amide bond, an imide bond, a sulfonamide bond, a urethane bond, a urea bond, and a thiourea bond (column 3, lines 33-51).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink taught by Kubodera with the disclosure of Aoshima in order to provide for a stable ink composition.

Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubodera (JP 10095942) and Aoshima (US 6068963), in further view of Aono et al. (JP 07-219113).

Kubodera and Aoshima teach the ink of claim 1. Kubodera also teaches a surface tension adjuster [0060]. However, neither teaches recording ink further comprising a water-soluble organic solvent or a high-boiling water-soluble solvent.

Aono et al. teaches recording ink further comprising a water-soluble organic solvent [0009] and a high-boiling water-soluble solvent [0088].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink of Kubodera as modified with the disclosure of Aono et al. in order to make a more stable ink composition.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubodera (JP 10095942) and Aoshima (US 6068963), in further view of Yamanouchi et al. (US 20020143079).

Kubodera and Aoshima teach the ink of claim 1; however, neither reference discloses a penetration promoter.

Yamanouchi et al. teaches an ink comprising a penetration promoter [0501].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink of Kubodera as modified with the disclosure of Yamanouchi et al. in order to prevent bleeding.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubodera (JP 10095942) and Aoshima (US 6068963), in further view of Nishita (US 20020060727).

Kubodera and Aoshima teach the ink of claim 1; however, both references fail to disclose a surface tension of 20 to 60 mN/m.

Nishita teaches a surface tension of 20 to 60 mN/m [0251].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink of Kubodera as modified with the disclosure of Nishita in order to provide a stronger ink composition.

Response to Arguments

Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

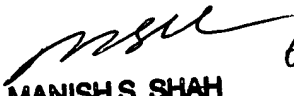
As per claim 12, Applicant argues that it would not have been obvious to one of ordinary skill in the art to modify the ink taught by Kubodera and Aoshima with the disclosure of Leppard et al.; however,

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura E. Martin whose telephone number is (571) 272-2160. The examiner can normally be reached on Monday - Friday, 7:00 - 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura E. Martin

 6/9/06
MANISH S. SHAH
PRIMARY EXAMINER